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MARINE FORCES PACIFIC
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GROUP ORDER 6200.1F

From: Commanding General, 3d Force Service Support Group
To: Distribution List

Subj: HEAT CASUALTIES

Ref: (a) MCO 6200.1D
(b) BO 6200.7H

Encl: (1) Prevention and First Aid for Heat Casualties
(2) Heat Conditions and Limitation of Activities
(3) Mandatory Acclimatization Program

1. Purpose. To provide information on the types, causes, recognition and treatment of heat casualties, and to provide instructions for the prevention of heat casualties within the 3d Force Service Support Group (3d FSSG).

2. Cancellation. GruO 6200.1E.

3. Summary of Revision. This Order contains a significant number of changes and must be reviewed in its entirety.

4. Background. Reference (a) contains information on the types, causes, and symptoms of heat illnesses. Reference (b) provides information on the use of the Wet Bulb-Globe Temperature (WBGT) Index System.

5. Information. WBGT readings are disseminated as follows:

a. For Camp Kinser units: by Camp Services.

b. For Camp Foster units: by Camp Services, Marine Corps Base, Camp Foster.

c. For Camp Hansen and Camp Schwab units: by the Officer In Charge, Base Range detachment.

6. Action

a. Commanding Officers

(1) Establish procedures for the rapid and timely dissemination of WBGT readings throughout the unit (to include a phone watch during lunch hour).

(2) Conduct indoctrination of personnel in the prevention and treatment of heat casualties as outlined in enclosure (1).

(3) Regulate training activities per the provisions of enclosure (2).

(4) Ensure that all newly arrived personnel are acclimatized for a period of at least 6 weeks. These periods will be progressive as to the degree of physical exertion and heat exposure. Acclimatized personnel returning from at least 2 weeks Temporary Additional Duty/Leave in a cooler environment during the months of May through October will be reacclimatized. A mandatory acclimatization program is outlined in enclosure (3).

b. Group Surgeon. Exercise staff cognizance over the heat casualty program.

S. D. Anderson

S. D. ANDERSON
Chief of Staff

DISTRIBUTION: A

Copy to: CG, MCB, Camp Butler (2)

PREVENTION AND FIRST AID FOR HEAT CASUALTIES

1. Body Heat and Environment

a. The human body generates heat through the action of the thyroid gland, and for the most part through muscular activity, especially during exercise.

b. The body must maintain a stable temperature for normal functioning. To do so, heat that is generated is brought by the blood to the skin where it is dissipated to the environment by radiation or convection. When high environmental temperatures preclude these processes, the body sweats. Heat from the body is then lost to the environment by sweat evaporation.

c. Excessive loss of water and salt, especially while exercising in hot and humid weather can compromise the body's heat regulating system.

2. Types, Causes, Symptoms, and First Aid for Heat Casualties

a. There are three basic types of heat casualties: heat cramps, heat exhaustion, and heatstroke. Heat exhaustion may progress into heatstroke, which is the most serious heat casualty and unless promptly treated, may result in death or permanent brain damage. Heatstroke is a medical emergency.

b. Heat cramps may occur as an isolated condition with normal body temperature or along with heat exhaustion. Heat cramps may affect small or large muscle groups. The body parts most frequently involved are muscles of the arms, legs, or abdomen. If heat cramps occur, terminate activity whenever possible and increase fluid intake to offset fluid loss.

c. Symptoms of heat exhaustion and heatstroke are different and easy to recognize. Major differences are in the condition of the skin. In heat exhaustion, the skin is sweaty, cool and clammy. In heatstroke, the skin is usually dry, hot, and flushed.

d. The causes, symptoms, and first aid treatment for heat exhaustion and heat stroke are:

(1) Heat Exhaustion

(a) Cause. Exposure to high temperature, humidity, and solar heat are prime factors. Also, prolonged work in heat and high humidity, recent arrival to a hot and humid climate, and too much clothing.

(b) Signs/Symptoms. The skin is sweaty, cool, and clammy. The individual may complain of headache, weakness, nausea, and dizziness. Breathing and heart rate may be increased.

(c) First Aid:

1 Send for medical aid.

2 Place casualty in a cool, shady place with circulating air.

3 Lay casualty down on back and elevate legs 4 to 6 inches off the ground.

4 Loosen clothing and equipment.

5 If casualty is conscious, give liberal quantities of water in small amounts.

(2) Heat Stroke

(a) Cause. Exposures to high temperatures and humidity, coupled with the body's inability to sweat creates the potential for heatstroke. Solar heat, prolonged work on recent arrival into a hot, humid climate and too much clothing can be contributing factors. When sweating stops, the body's temperature increases to extreme levels that can produce irreversible body damage.

(b) Signs/Symptoms. Cessation of sweat usually occurs before acute symptoms. Loss of consciousness may be the first sign. Member may complain of headache, dizziness, abdominal distress, and confusion. Delirium occurs in severe cases. The skin is hot, dry, and without sweat. Breathing and heart rate are increased. Coma can occur depending on the severity. Shortness of breath, headache, weakness, dizziness, blurred vision, nausea, and muscle cramps may occur.

(c) First Aid

1 Send for medical aid.

2 THE PRIMARY CONCERN IS TO LOWER THE BODY'S TEMPERATURE AS QUICKLY AS POSSIBLE.

3 Move casualty to a cool, shady place with circulating air. Do NOT attempt to make the casualty drink.

4 Loosen clothing and equipment.

5 If available, immerse casualty in an ice water bath. If not, apply cold or ice water to the entire body.

6 Fan the patient constantly to promote cooling of the body by evaporation of applied water.

3. Heat Casualty Prevention. Approximately 60 percent of the body's weight is water. Salt is also an essential component. Sweating causes the body to lose these items and they must be replaced. The body cannot be "weaned" away from water or trained to do without salt.

4. Prevention. The following is recommended to avoid heat exhaustion and heatstroke during hot weather:

a. Encourage personnel to drink water frequently. Frequent large intakes may lead to stomach distention, vomiting, or cardiac problems. Needs may range from two quarts to three gallons per day when consuming field rations and performing heavy work in hot weather. In fact, the need for water may exceed desire. Ideally personnel should drink until their urine becomes clear or very pale yellow.

b. Avoid sodas. Plain water is preferable and adequate.

c. The average diet provides the necessary daily salt.

d. Personnel should wear headgear in the sun. Light, loose clothing will actually deflect the sun's heat and is recommended.

e. A Marine or Sailor who gets sick or dizzy in hot weather should rest. DON'T OVERDO IT.

f. If an individual stops sweating - GET PROMPT MEDICAL HELP.

g. Poor physical condition, lack of muscle tone, obesity, alcoholic indulgence, certain medication, and lack of sleep can increase one's susceptibility to heat injury.

5. Controlling Heat Casualties

a. Personnel who are unaccustomed to strenuous physical activity during the high environmental temperatures are susceptible to heat injuries. This is especially true of most individuals who are 10 pounds or more overweight, or those who have chronic illnesses or sweating deficiencies, acquired or congenital. Also at risk are otherwise healthy persons who become desensitized as a result of their return to a cooler or colder environment. Prior heat injuries and recent illness are also contributing factors.

b. Training programs for those personnel who are climatically and/or physically deficient should be of limited intensity and duration. A break-in period of 3 to 6 weeks with progressive degrees of physical exertion and heat exposure will suffice for achieving acclimatization. During this period the work load should be increased gradually, but not to the point of exhaustion or where personnel will be unduly fatigued the following day. Until acclimatized, personnel will lose greater than normal quantities of water and salt. These losses must be replaced.

c. Although acclimatization increases tolerance for heat, it does not make an individual immune to becoming a heat casualty. Overexertion can lead to heat illness even in mild weather.

d. Special attention should be given to individuals who have chronic medical problems, e. g., diabetes, alcoholism, hypertension, or inadequate or absent sweating.

6. Water and Salt Intake

a. Water intake must be sufficient to replace that which is lost due to sweating. During field exercises in hot weather, water intake should be increased up to one liter per hour, to replace that which is lost through sweating. Personnel should be encouraged to drink water in small frequent installments.

b. Salt tablets are no longer authorized. There is sufficient salt in field rations. Salt replacement should be managed by medical personnel.

7. Rest, Sleep, and Recreation During Acclimatization Periods

a. Schedules should call for a 10-minute break every hour. The hour immediately after the noon and evening meals should be devoted to relaxation and non-strenuous training. Seven hours of sleep per 24-hour period is the minimum required for general efficiency.

b. Sleeping, messing, and recreational quarters should be screened and well ventilated by either natural or mechanical means. A WBGT of more than 80 during the night calls for artificial cooling if possible.

8. Treatment Stations. Field stations should be prepared to treat heat casualties. Artificial cooling devices should be employed at treatment stations and in ambulances whenever possible.

9. Clothing

a. Clothing and equipment should be worn in such a way as to provide maximum skin ventilation without unnecessary exposure to direct sunlight.

b. In adjusting clothing and equipment, care should be taken to avoid restriction of blood circulation.

10. Training. All Marines and Sailors should receive periodic instruction from medical department personnel concerning the prevention, recognition, and emergency treatment of heat casualties.

HEAT CONDITIONS AND LIMITATION OF ACTIVITIES

1. Green Flag - Index of 80 degrees - 84.9 degrees Fahrenheit
   Yellow Flag - Index of 85 degrees - 87.9 degrees Fahrenheit
   Red Flag - Index of 88 degrees - 89.9 degrees Fahrenheit
   Black Flag - Index of 90 degrees Fahrenheit or above

2. When these flags are displayed, physical activity will be regulated according to the following guidelines:

a. Heat Condition IV, Green Flag. Strenuous exercise for unacclimatized troops will be conducted with caution and under constant supervision.

b. Heat Condition III, Yellow Flag. Strenuous exercise will be suspended for unacclimatized troops in their first three or four weeks. Outdoor classes in the sun should be avoided.

c. Heat Condition II, Red Flag. All physical training will be halted for those troops who have not become thoroughly acclimatized by 12 weeks of living and working in the area. Acclimatized troops may carry on limited activity not to exceed six hours per day.

d. Heat Condition I, Black Flag. Strenuous activity will be halted for all troops except for emergency requirements.

MANDATORY ACCLIMATIZATION PROGRAM

1. First Week

a. Training Day 1 T-1 to T-4. No organized PT. This time should be used for evaluation medical indoctrination and as a four day period used to overcome travel-induced lethargy. Normal daily outdoor activity will cause some acclimatization.

b. T-5 to T-7. Early morning PT period. Fifteen minutes warm-up exercise (loosen arms, legs, shoulders and back). Don't overexert, but get perspiration started. Run 1/2 mile (4 minutes minimum, 5 minutes maximum). Upon reaching the 1/2 mile mark, immediately stop and execute 15 four-count side straddle hops. Upon completion, personnel will jog back to the starting point and execute 10 push-ups. Do stretching exercises to conclude the PT period.

2. Second Week

a. T-8 to T-10. Early morning PT period. Fifteen minutes warm-up exercise (loosen arms, legs, shoulders and back). Don't overexert but get perspiration started. Pull-ups: minimum 3, maximum 12. Sit-ups: minimum 35, maximum 64 (2 mins). Run 1 mile (8 minutes minimum, 9 minutes maximum). Stop at the 1/2 mile mark, execute 20 four-count side straddle hops, then continue to the 1 mile mark. Stop at the 1 mile mark and execute 10 four-count squat thrusts. Jog back to the starting point, execute 30 more sit-ups, 3 more pull-ups, and do stretching exercises.

b. T-11 to T-13. Early morning PT period. Fifteen minutes warm-up exercise (loosen arms, legs, shoulders and back). Don't overexert, but get perspiration started. Pull ups: minimum 3, Maximum 15. Sit-ups: Minimum 35, Maximum 64 (2 mins). Run 1 mile, (8 minutes minimum, 9 minutes maximum). Stop at the 1/2 mile mark, execute 20 four-count side straddle hops, then continue to the 1-mile mark. Stop at the 1-mile mark and execute 10 four-count squat thrusts. Jog back to the starting point, execute 30 more sit-ups, 3 more pull-ups, and do stretching exercises.

c. T-14. Off day.

3. Third Week

a. T-15 to T-16. Early morning PT. Fifteen minute warm-up exercise (loosen arms, legs, shoulders, and back). Don't overexert but get perspiration started. Pull-ups: minimum 3, maximum 20. Sit-ups: minimum 35, maximum 80 (2 mins). Run 1 mile (8 minutes minimum, 9 minutes maximum). Stop at the ½ mile mark, execute 20 four-count side straddle hops. Run back to the starting point, execute 30 sit-ups, 3 pull-ups and stretching exercises.

b. T-17 to T-18. Early morning PT period. Fifteen minute warm up exercise (loosen arms, legs, shoulders, and back). Don't overexert, but get perspiration started. Pull-ups: Minimum 3, maximum 20. Sit-ups: minimum 35, maximum 80 (2 mins). 2 mile run (16 minute minimum, 20 minute maximum). Upon return, execute 20 four-count side straddle hops, 30 sit-ups, and a minimum of 3 pull-ups. More sets of pull-ups and sit-ups may be added according to the individual's progress at this time.

c. T-19. Same as T-17-18. Increase run to 3 miles; maintain pace until 2 mile mark, jog remaining mile.

d. T-20. Same as T-17-18. Increase run to three miles.

4. Fourth Week

a. T-21. Off day.

b. T-22 to T-23. Same as (T-17 to T-18).

c. T-24 to T-25. Same as (T-17 to T-18) and increase run to three miles.

d. T-26. Day off.

5. Fifth Week

a. T-27 to T-28. Same as (T-24 to T-25).

b. T-29

(1) Personnel who arrive on island during 1 November through 30 April will be administered the Marine Corps Physical Fitness Test or Navy Physical Readiness Test. Evaluate all personnel who have participated in the acclimatization program, as to their ability to withstand heat during strenuous exercise.

(2) Personnel who arrive on island during 1 May through 31 October will consider T-29 an off day from training and continue into the fourth week of acclimatization.

c. T-30 to T-31. Same as (T-24 to T-25).

d. T-32. Off day.

6. Sixth Week

a. T-33 to T-34. Same as (T-24 to T-25).

b. T-35. Off day.

c. T-36 to T-37. Same as (T-24 to T-25).

d. T-38. Off day.

e. T-39 to T-40. Same as (T-24 to T-25).

f. T-41. Day off.

g. T-42. Administer the Marine Corps Physical Fitness/Navy Physical Readiness Test. Evaluate all personnel who have participated in the acclimatization program as to their ability to withstand heat during strenuous exercise.